

ABSTRACT OF THE DISCLOSURE

A method and apparatus for performing multiple deposition processes is provided. In one embodiment, the apparatus includes a chamber body and a gas distribution assembly disposed on the chamber body. In one embodiment, the method comprises positioning a substrate surface to be processed within a chamber body, delivering two or more compounds into the chamber body utilizing a gas distribution assembly disposed on the chamber body to deposit a film comprising a first material, and then delivering two or more compounds into the chamber body utilizing a gas distribution assembly disposed on the chamber body to deposit a film comprising a second material. In one aspect of these embodiments, the gas distribution assembly includes a gas conduit in fluid communication with the chamber body, two or more isolated gas inlets equipped with one or more high speed actuating valves in fluid communication with the gas conduit, and a mixing channel in fluid communication with the gas conduit. The valves are adapted to alternately pulse one or more compounds into the gas conduit, and the mixing channel is adapted to deliver a continuous flow of one or more compounds into the gas conduit.

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